

ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
SACRAMENTO, CALIFORNIA

SPK-03101
May 83
Revised Apr 89

TO: Architect-Engineers and District Personnel:

1. The attached revised guide specification supercedes the previous guide, AIR-BLOWN MORTAR, SPK-3D, dated May 1983, and is for use in the preparation of project specifications.

GENERAL NOTES

Para 1

Para 2

TECHNICAL NOTES

Para A

Para B

TEXT REVISIONS

Para 1

Para 1.1

Para 8

NOTE: A-E's should read all the TECHNICAL NOTES located at the beginning of this guide specification and edit the specification accordingly.

GENERAL NOTES

1. This guide specification is to be used in the preparation of contract specifications in accordance with the Sacramento District Specification Manual. It will not be made a part of a contract merely by reference; pertinent portions will be copied verbatim into the contract documents.
2. Where numbers, symbols, words, phrases, clauses, or sentences in this specification are enclosed in the following manner: [], a choice or modification must be made; delete inapplicable portion(s) carefully. Where blank spaces occur in sentences, insert the appropriate data. Where entire paragraphs are not applicable, they should be deleted completely.

TECHNICAL NOTES

- A. The section number will be inserted in the specification heading and prefixed to each page number in project specifications.
- B. Paragraph 1: The listed designations for publications are those that were in effect when this guide specification was being prepared. These designations are updated when necessary by District Instruction, and references in project specifications need be no later than in the current District Instruction for this guide specification. To minimize the possibility of error, the letter suffixes, amendments, and dates indicating specific issues should be retained in Paragraph 1 and omitted elsewhere in the project specification.

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SECTION 03101

AIR-BLOWN MORTAR

1. APPLICABLE PUBLICATIONS: The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

1.1 American Society for Testing and Materials (ASTM) Publications:

A 185-85 Welded Steel Wire Fabric for Concrete Reinforcement.

C 33-86 Concrete Aggregates.

C 150-85a Portland Cement.

1.2 U.S. Army Corps of Engineers Handbook for Concrete and Cement:

CRD-C 300-77 Membrane-Forming Compounds for Curing Concrete.

2. GENERAL: This work shall consist of lining with air-blown mortar in accordance with the details and dimensions shown on the plans and as specified in these specifications. Air-blown mortar shall consist of either dry mixed fine aggregate and portland cement pneumatically applied by a suitable mechanism, to which mixture the water is added immediately previous to its expulsion from the nozzle, or mortar premixed by mechanical methods and applied by pumping the premixed mortar onto the prepared foundation pneumatically through a nozzle.

3. MATERIALS:

3.1 Portland Cement: Portland cement shall conform to ASTM C 150, Type II.

3.2 Fine Aggregate: Fine aggregate shall conform to ASTM C 33.

3.3 Mixing Water: Mixing water shall be clean, fresh, and free from injurious amounts of mineral and organic substances.

3.4 Air-entraining cement: The Contractor has the option of supplying a mill-produced air-entraining product, or of adding the air-entraining agent at the mixer.

3.5 Mesh reinforcement shall conform to ASTM Specification A 185 and shall be 2 x 2 mesh, No. 14 gage.

3.6 The dry mixture shall consist of one part portland cement to not more than 4-1/2 parts of fine aggregate thoroughly mixed in a dry state before

being charged into the machine. Measurement may be either by volume or weight. The fine aggregate shall contain not more than 6 percent moisture by weight.

3.7 The premixed mortar shall contain not less than 6-1/2 sacks of portland cement per cubic yard, fine aggregate and water. A maximum of 30 percent pea gravel may be substituted for fine aggregate. The maximum size of pea gravel shall be such that 100 percent passes the 1/2 screen and at least 90 percent passes the 3/8-inch screen.

4. PREPARATION OF FOUNDATION: The foundation for areas to receive air-blown mortar shall be evenly graded before the mortar is applied and no point on the graded slope shall be above the slope plane shown on the plans or directed by the Contracting Officer.

4.1 The areas shall be thoroughly compacted, with sufficient moisture to provide a firm foundation and to prevent absorption of water from the mortar, but shall not contain free surface water.

4.2 When shown on the plans, joints, side forms and shooting strips shall be provided for backing or paneling. Ground or gaging wires shall be used where necessary to establish thicknesses, surface planes and finish lines.

5. PLACING:

5.1 The nozzle shall be directed in such a manner as to result in minimum rebound of the mortar.

5.2 The velocity of the material as it leaves the nozzle shall be maintained uniform and at a rate determined for the given job conditions.

5.3 A constant pressure of not less than 45 pounds per square inch shall be maintained in the placing machine where the hose length is 100 feet or less and the pressure shall be increased at least 5 pounds for each additional 50 feet of hose or fraction thereof.

5.4 Water used for hydration at the nozzle shall be maintained at a uniform pressure, which shall be not less than 15 pounds per square inch greater than the air pressure at the machine.

5.5 Materials that have been mixed for more than 45 minutes and have not been incorporated in the work shall not be used, unless otherwise permitted by the Contracting Officer.

6. REBOUND: Rebound recovered which is clean and free of foreign material may be reused as fine aggregate in quantities not to exceed 20 percent of the total fine aggregate requirements.

7. FINISHING: After the mortar has been placed as nearly as practicable to the required depth, the surface shall be checked with a straightedge, and any low spots or depressions shall be brought up to proper grade by placing additional mortar in such a manner that the finished surface will be reasonably smooth and uniform for the type of work involved.

7.1 Loose areas of air-blown mortar shall be removed and replaced by the Contractor at his expense.

7.2 Air blown mortar shall be moist cured for seven days or cured by a white pigmented membrane-forming curing compound conforming to CRD-C 300 and shall be protected from weather until hardened.

8. CONSTRUCTION QUALITY CONTROL: Attention is directed to SECTION: CONSTRUCTION QUALITY CONTROL which requires the Contractor to perform quality control inspection, testing, and reporting.

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- REMINDER -

Located at the front of these specifications are the Contract Clauses, Special Clauses and Division I GENERAL REQUIREMENTS of the Technical Specifications, which apply to every aspect of this contract including the work in this section whether performed by Prime Contractor, subcontractor, or supplier.